

PORTABLE TERMINAL WITH DUAL AXIS HINGE DEVICE**PRIORITY**

[0001] This application claims priority to an application entitled "Portable Terminal with Dual Axis Hinge Device" filed with the Korean Intellectual Property Office on Nov. 28, 2005 and accorded Ser. No. 2005-114185, the contents of which are hereby incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION**[0002] 1. Field of the Invention**

[0003] The present invention relates to a portable terminal including a cellular phone, a personal digital assistant (PDA), a hand-held phone (HHP), a camera phone, a game phone, an Internet phone, and the like. In particular, the invention relates to a portable terminal with a dual axis hinge device.

[0004] 2. Description of the Related Art

[0005] Typically, the term "portable terminal" means an electronic appliance which enables a user, who carries the portable terminal, to have cordless communication with a counterpart. To increase portability, such portable terminals are being miniaturized, slimmed, narrowed and lightened, and are also tending toward multi-media which can seek various functions. Therefore, it is expected that portable terminals will continue to be miniaturized and made lightweight. The devices will be used multifunctionally and multipurposely, and will be modified to be adaptive for various multimedia and Internet circumstances. In addition, such portable terminals are electronic appliances, which are popularly used by male and female, old and young all over the world and considered as necessities which should be always carried.

[0006] Popularized conventional portable terminals are classified into various types depending on external appearance. For example, portable terminals are classified into bar type, flip type and folder type. In addition, portable terminals may be classified into neck wearable type or wrist wearable type depending on the wearing position or method of use. Furthermore, portable terminals may be classified into rotation type or sliding type depending on the opening and closing method. The above mentioned various classification of portable terminals can be readily understood by one having a common knowledge in the art.

[0007] In addition, the construction of portable terminals is being improved to be capable of implementing high speed data communication, beyond voice communication. That is, as the desires of consumers increase, high speed data transmission services will be provided which use cordless communication technologies.

[0008] At present, conventional portable terminals tend to employ a camera lens to photograph and send a photographed image signal. Popularized portable terminals have an external or internal camera lens module, whereby it becomes possible to perform image communication with a counterpart or to photograph an object.

[0009] However, because the external appearance of the conventional portable terminals have been developed on the basis of a shape which is suitable for performing a commu-

nication function such as voice communication, message sending or the like, they have a disadvantage in using a multimedia service or the like. For example, because a typical display device for a conventional portable terminal is sized to be larger in the longitudinal direction thereof, it is inconvenient to view a moving image file.

SUMMARY OF THE INVENTION

[0010] Accordingly, the present invention solves the above-mentioned problems occurring in the prior art. One object of the present invention is to provide a portable terminal with a dual axis hinge device.

[0011] Another object of the present invention is to provide a portable terminal with a dual axis hinge device, which provides two hinge axes so that a housing of the portable terminal can be opened or closed in two directions, thereby enhancing the convenience of a user.

[0012] In order to achieve the above-mentioned objects, a portable terminal is provided that includes: a first housing; a second housing rotatably connected to the first housing to be capable of being moved between an open and closed position; and a hinge device for interconnecting the first and second housings, the hinge device providing first and second hinge axes extending perpendicular to each other, wherein the hinge device limits the rotation of the second housing about the second hinge axis when the second housing has been rotated about the first hinge axis to the open position, and the hinge device limits the rotation of the second housing about the first hinge axis when the second housing has been rotated about the second hinge axis to the open position.

[0013] These and other salient features of the invention will become apparent from the following detailed description of the invention which in conjunction with the annexed drawings disclose various embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The above and other objects, features and advantages of the present invention will be more apparent from the following detailed description taken in conjunction with the accompanying drawings, in which:

[0015] FIG. 1 is an exploded perspective view of a dual axis hinge device of a portable terminal according to an embodiment of the present invention;

[0016] FIG. 2 is an exploded perspective view showing the dual axis hinge device as assembled with a portable terminal;

[0017] FIG. 3 is a perspective view showing a first connection shaft of the hinge device shown in FIG. 1;

[0018] FIG. 4 is a perspective view showing a second connection shaft of the hinge device shown in FIG. 1;

[0019] FIG. 5 is a perspective view showing the cooperative relationship between the first and second connection shafts of the hinge device shown in FIG. 1; and

[0020] FIG. 6 is a perspective view showing the cooperative relationship where the second connection shaft is rotated about 150 degrees about a second hinge axis from the position shown in FIG. 5;